TS32MSQ64V4M

200PIN DDR2 400 SO-DIMM
256MB With 32Mx16 CL3

Description

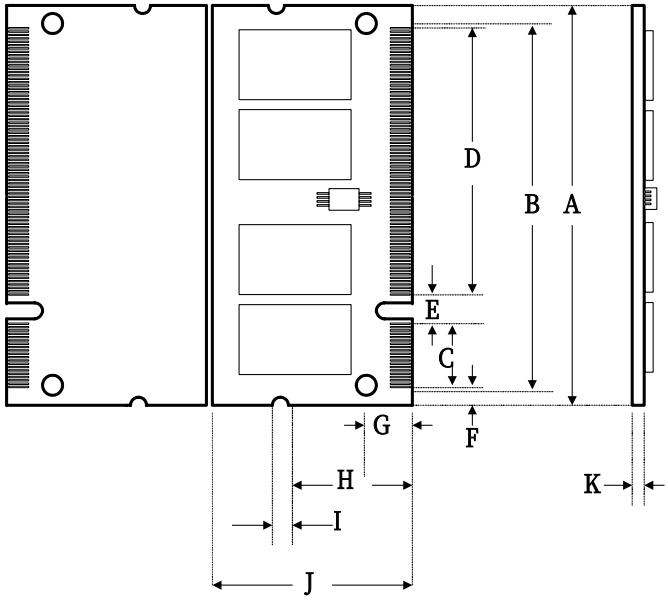
The TS32MSQ64V4M is a 32M x 64bits DDR2-400 SO-DIMM. The TS32MSQ64V4M consists of 4pcs 32Mx16 bits DDR2 SDRAMs in 84 ball FBGA packages and a 2048 bits serial EEPROM on a 200-pin printed circuit board. The TS32MSQ64V4M is a Dual In-Line Memory Module and is intended for mounting into 200-pin edge connector sockets.

Synchronous design allows precise cycle control with the use of system clock. Data I/O transactions are possible on both edges of DQS. Range of operation frequencies, programmable latencies allow the same device to be useful for a variety of high bandwidth, high performance memory system applications.

Features

- RoHS compliant products.
- JEDEC standard 1.8V ± 0.1V Power supply
- VDDQ=1.8V ± 0.1V
- Max clock Freq: 200MHZ; 400Mb/s/Pin.
- Posted CAS
- Programmable CAS Latency: 3,4,5
- Programmable Additive Latency :0, 1,2,3 and 4
- Write Latency (WL) = Read Latency (RL)-1
- Burst Length: 4,8(Interleave/nibble sequential)
- Programmable sequential / Interleave Burst Mode
- Bi-directional Differential Data-Strobe (Single-ended data-strobe is an optional feature)
- Off-Chip Driver (OCD) Impedance Adjustment
- MRS cycle with address key programs.
- On Die Termination
- Serial presence detect with EEPROM

Placement



PCB: 09-2400

Dimensions

Side	Millimeters	Inches
A	67.6±0.15	2.661±0.006
B	63.6	2.503
C	11.4	0.449
D	47.4	1.866
E	4.2	0.165
F	2.15±0.15	0.085±0.006
G	6	0.236
H	18	0.709
I	4	0.157
J	30	1.181
K	1.0±0.075	0.039±0.003

(Refer Placement)

Pin Identification

Symbol	Function
A0~A15, BA0~BA2	Address input
DQ0~DQ63	Data Input / Output.
DQS0~DQS7	Data strobe
/DQS0~/DQS7	Differential Data strobe
CK0, /CK0 CK1, /CK1	Clock Input.
CKE0, CKE1	Clock Enable Input.
ODT0, ODT1	On-die termination control line
/CS0, /CS1	Chip Select Input.
/RAS	Row Address Strobe
/CAS	Column Address Strobe
/WE	Write Enable
DM0~DM7	Data-in Mask
VDD	+1.8 Voltage power supply
VDDQ	+1.8 Voltage Power Supply for DQS
VREF	Power Supply for Reference
VDDSPD	Serial EEPROM Positive Power Supply
SA0~SA2	Address select for EEPROM
SCL	Serial PD Clock
SDA	Serial PD Add/Data input/output
VSS	Ground
NC	No Connection

Pinouts:

Pin No	Pin Name	Pin No	Pin Name	Pin No	Pin Name	Pin No	Pin Name	Pin No	Pin Name	Pin No	Pin Name
01	VREF	69	NC	137	DQ35	02	VSS	70	DQS3	138	VSS
03	VSS	71	VSS	139	VSS	04	DQ4	72	VSS	140	DQ44
05	DQ0	73	DQ26	141	DQ40	06	DQ5	74	DQ30	142	DQ45
07	DQ1	75	DQ27	143	DQ41	08	VSS	76	DQ31	144	VSS
09	VSS	77	VSS	145	VSS	10	DM0	78	VSS	146	/DQS5
11	/DQS0	79	CKE0	147	DM5	12	VSS	80	*CKE1	148	DQS5
13	DQS0	81	VDD	149	VSS	14	DQ6	82	VDD	150	VSS
15	VSS	83	*/CS2	151	DQ42	16	DQ7	84	*A15	152	DQ46
17	DQ2	85	*BA2	153	DQ43	18	VSS	86	*A14	154	DQ47
19	DQ3	87	VDD	155	VSS	20	DQ12	88	VDD	156	VSS
21	VSS	89	A12	157	DQ48	22	DQ13	90	A11	158	DQ52
23	DQ8	91	A9	159	DQ49	24	VSS	92	A7	160	DQ53
25	DQ9	93	A8	161	VSS	26	DM1	94	A6	162	VSS
27	VSS	95	VDD	163	NC, TEST	28	VSS	96	VDD	164	CK1
29	/DQS1	97	A5	165	VSS	30	CK0	98	A4	166	/CK1
31	DQS1	99	A3	167	/DQS6	32	/CK0	100	A2	168	VSS
33	VSS	101	A1	169	DQS6	34	VSS	102	A0	170	DM6
35	DQ10	103	VDD	171	VSS	36	DQ14	104	VDD	172	VSS
37	DQ11	105	A10/AP	173	DQ50	38	DQ15	106	BA1	174	DQ54
39	VSS	107	BA0	175	DQ51	40	VSS	108	/RAS	176	DQ55
41	VSS	109	/WE	177	VSS	42	VSS	110	/CS0	178	VSS
43	DQ16	111	VDD	179	DQ56	44	DQ20	112	VDD	180	DQ60
45	DQ17	113	/CAS	181	DQ57	46	DQ21	114	ODT0	182	DQ61
47	VSS	115	*/CS1	183	VSS	48	VSS	116	*A13	184	VSS
49	/DQS2	117	VDD	185	DM7	50	NC	118	VDD	186	/DQS7
51	DQS2	119	*ODT1	187	VSS	52	DM2	120	*/CS3	188	DQS7
53	VSS	121	VSS	189	DQ58	54	VSS	122	VSS	190	VSS
55	DQ18	123	DQ32	191	DQ59	56	DQ22	124	DQ36	192	DQ62
57	DQ19	125	DQ33	193	VSS	58	DQ23	126	DQ37	194	DQ63
59	VSS	127	VSS	195	SDA	60	VSS	128	VSS	196	VSS
61	DQ24	129	/DQS4	197	SCL	62	DQ28	130	DM4	198	SA0
63	DQ25	131	DQS4	199	VDDSPD	64	DQ29	132	VSS	200	SA1
65	VSS	133	VSS			66	VSS	134	DQ38		
67	DM3	135	DQ34			68	/DQS3	136	DQ39		